PC Real-time Video Controller

LT-5100 V7.6

User's manual

(Kindly read through this manual before use)

July, 2009

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1. Product Description

The PC Live Control System, LT-5100, is a LED control system which is used for controlling building brightness, indoor and outdoor, as well as playing video. The customers can show contents according to their own ideas，through the real-time control and transmission by computer, Any image can be shown in the LED screen. Figure 1 is the controller appearance..

Figure 1

2. Product Features

Synchronous control system by computer，Whatever is shown in the computer also can be shown synchronously in the LED screen.

Using the latest control technology to overcome the complicate connection shortage. Enable the connection simple, and the production, engineering and maintenance easy and convenient.

Using standard Ethernet output to enable the transmission distance unrestricted.

Using advanced image processing software technology，no need additional graphic cards and sending cards. It can be controlled by desktop or notebook PC, very easy for debugging and demonstration.

Contrast control, full color, rich picture stunt display.

It can implement image segmentation and synchronous display, and suitable for large screen and high density display control.

Nice anti-jamming capabilities and auto-recover after failure.

3. Performance parameters.

A single controller can control max 15360 LED pixels which can form in width and length at will..

Multi-controllers can be used meanwhile to control a larger screen.

Signal output type: SPI (TTL).

Contrast: Every single color has 65536 steps, increase from step 32 in turn, forming 16,777,216 true colors.

Frame rate: 30 frames /s.

Screen refresh rate: 120Hz～3000Hz.

Control mode: Full color synchronous control by computer.

Power input:12V DC 1000mA；

Maximum power:3W；

Description: can support direct reading and showing, can show files in any format, unlimited transmission distance, support multi image processing technology; has broadcasting function ,can broadcast in real time or asynchronous via internet；

11. Dimension: 280×width 180×high 38mm.

12. Working environment: -25℃～+85℃.

4. Connection Mode

4．1 The connection of computer and controller

The connection of the computer and controller through the Ethernet is shown in Figure 2.

Figure 2

4．2 The connection of controller and pixel screen

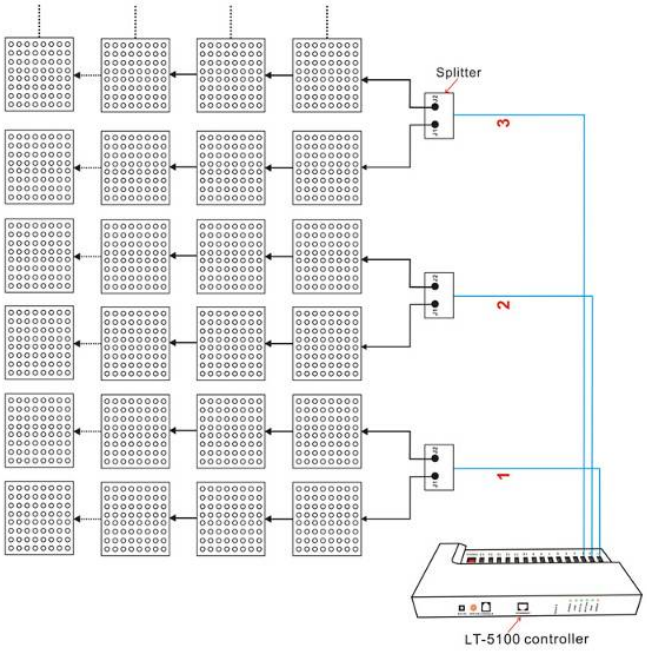


Figure 3

4．3 The connection of controller and digital tube

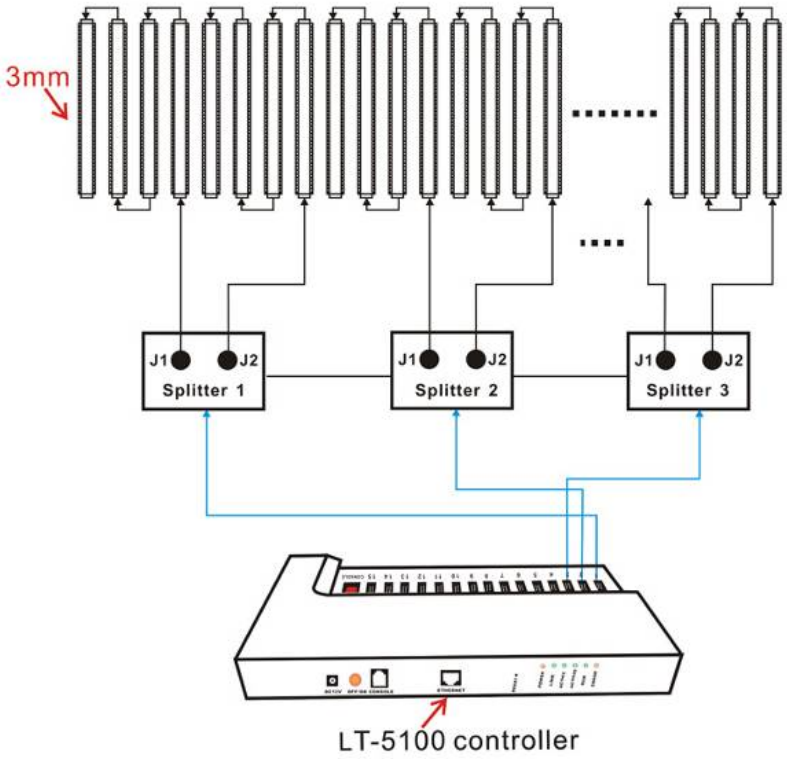


Figure 4

Connection Description:

1. Each controller has 15 splitters, which are connected with the controller's ports by using 16PIN line, each splitter has two outlets, total 30 outlets;
2. The splitter outputs TTL signal, max 20m between splitter and the led lights;
3. Each splitter can run max 512 pixel dots. For example: If adopting 16 segment digital tube, namely an output can control 32pcs of digital lamp tubes, but better control below 20 meters to reach a perfect effect.

4．4 The connection of multi-controllers

When a single controller is not enough to control the entire screen, Multiple controllers are needed to work together, The connection is shown as in Figure 5. At the same time The controllers shall be identified with number through the dip switch.

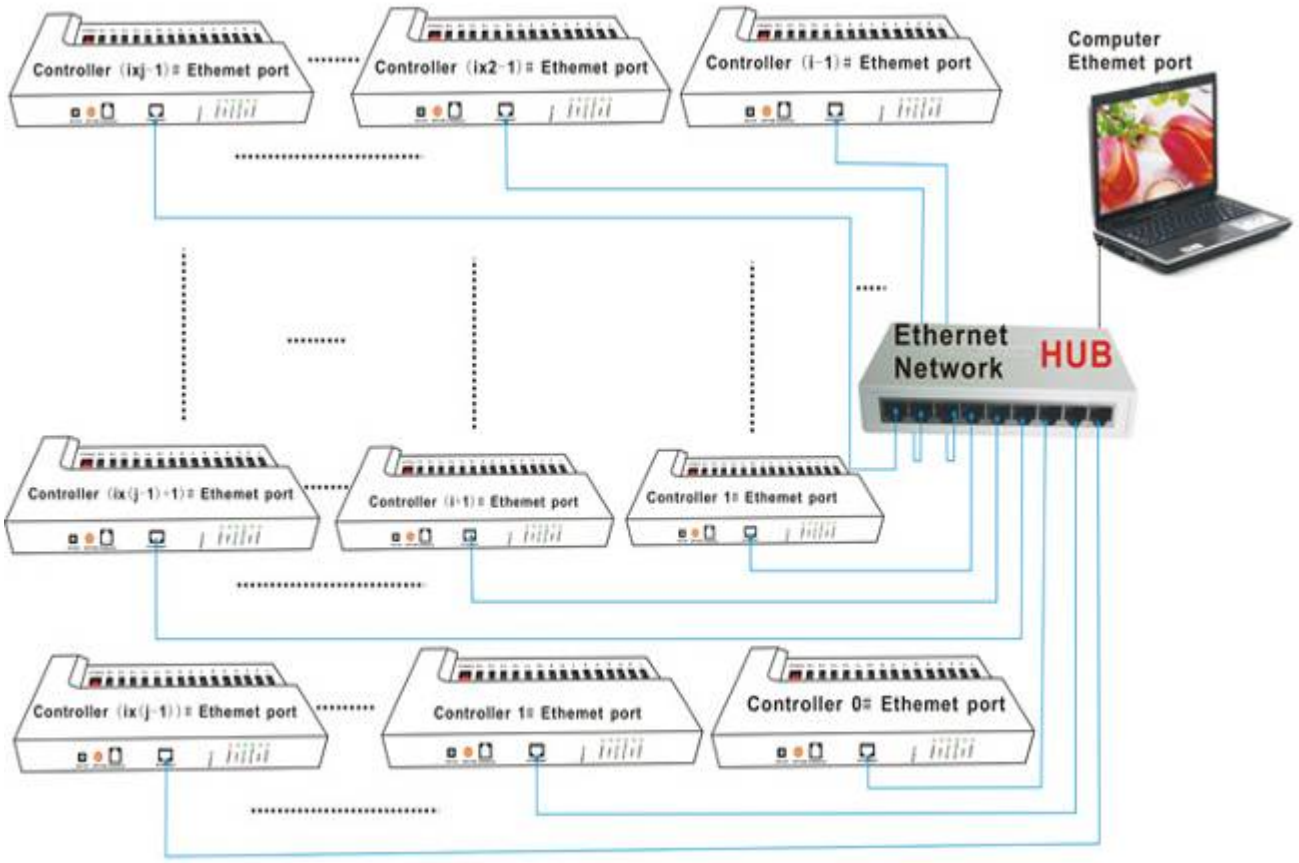


Figure 5

5. Setting Controller Number:

Two ways to set: automatically distribution and manually setting：

1） Put the dip switch at “OFF”, the controller will distribute a respective IP and a serial number for each controller automatically;

2）Manual setting:

When multi-controllers work together, you need to set serial number to every controller(for details , pls see《Table 5.1》).Through DIP switch the controller can change its serial number. The DIP switch has 8 dials, from dial 1 to dial 8,each dial has 2 states，switch to “ON” denoting “0”，otherwise denoting “1”. 8 dials of the DIP switch compose a 8 binary digit，NO 1 is the highest，NO 8 is the lowest，the DIP switch is as shown in Figure 6;

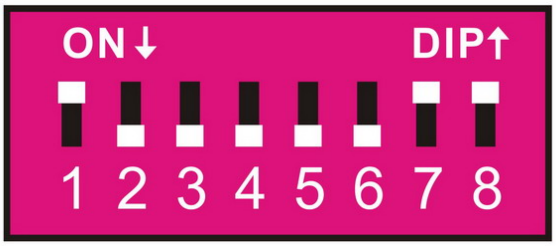


Figure 6

When using a single controller independently, please set the controller number as 0, and its responding switch state as “00000000”.

The relationship of the serial number of the controller and the IP address of the controller is shown as in Table 5.1.For example, to No 0, switch state is “00000000”，The corresponding IP address is “192.168.18.60”；DIP switch state is “01111100”, namely No. 124，Its corresponding IP address “192.168.18.184” can be found from Table 5.1.

Table 5.1 the IP address correspond to the DIP switch

Num	State	IP address	Num	State	IP address
0	00000000	192.168.18.60	98	01100010	192.168.18.158
1	00000001	192.168.18.61	99	01100011	192.168.18.159
2	00000010	192.168.18.62	100	01100100	192.168.18.160
3	00000011	192.168.18.63	101	01100101	192.168.18.161
4	00000100	192.168.18.64	102	01100110	192.168.18.162
5	00000101	192.168.18.65	103	01100111	192.168.18.163
6	00000110	192.168.18.66	104	01101000	192.168.18.164
7	00000111	192.168.18.67	105	01101001	192.168.18.165
8	00001000	192.168.18.68	106	01101010	192.168.18.166
9	00001001	192.168.18.69	107	01101011	192.168.18.167
10	00001010	192.168.18.70	108	01101100	192.168.18.168
11	00001011	192.168.18.71	109	01101101	192.168.18.169
12	00001100	192.168.18.72	110	01101110	192.168.18.170
13	00001101	192.168.18.73	111	01101111	192.168.18.171
14	00001110	192.168.18.74	112	01110000	192.168.18.172
15	00001111	192.168.18.75	113	01110001	192.168.18.173
16	00010000	192.168.18.76	114	01110010	192.168.18.174

17	00010001	192.168.18.77	115	01110011	192.168.18.175
18	00010010	192.168.18.78	116	01110100	192.168.18.176
19	00010011	192.168.18.79	117	01110101	192.168.18.177
20	00010100	192.168.18.80	118	01110110	192.168.18.178
21	00010101	192.168.18.81	119	01110111	192.168.18.179
22	00010110	192.168.18.82	120	01111000	192.168.18.180
23	00010111	192.168.18.83	121	01111001	192.168.18.181
24	00011000	192.168.18.84	122	01111010	192.168.18.182
25	00011001	192.168.18.85	123	01111011	192.168.18.183
26	00011010	192.168.18.86	124	01111100	192.168.18.184
27	00011011	192.168.18.87	125	01111101	192.168.18.185
28	00011100	192.168.18.88	126	01111110	192.168.18.186
29	00011101	192.168.18.89	127	01111111	192.168.18.187
30	00011110	192.168.18.90	128	10000000	192.168.18.188
31	00011111	192.168.18.91	129	10000001	192.168.18.189
32	00100000	192.168.18.92	130	10000010	192.168.18.190
33	00100001	192.168.18.93	131	10000011	192.168.18.190
34	00100010	192.168.18.94	132	10000100	192.168.18.192
35	00100011	192.168.18.95	133	10000101	192.168.18.193
36	00100100	192.168.18.96	134	10000110	192.168.18.194
37	00100101	192.168.18.97	135	10000111	192.168.18.195
38	00100110	192.168.18.98	136	10001000	192.168.18.196
39	00100111	192.168.18.99	137	10001001	192.168.18.197
40	00101000	192.168.18.100	138	10001010	192.168.18.198
41	00101001	192.168.18.101	139	10001011	192.168.18.199
42	00101010	192.168.18.102	140	10001100	192.168.18.200
43	00101011	192.168.18.103	141	10001101	192.168.18.201
44	00101100	192.168.18.104	142	10001110	192.168.18.202
45	00101101	192.168.18.105	143	10001111	192.168.18.203
45	00101110	192.168.18.106	144	10010000	192.168.18.204
47	00101111	192.168.18.107	145	10010001	192.168.18.205

48	00110000	192.168.18.108	146	10010010	192.168.18.206
49	00110001	192.168.18.109	147	10010011	192.168.18.207
50	00110010	192.168.18.110	148	10010100	192.168.18.208
51	00110011	192.168.18.111	149	10010101	192.168.18.209
52	00110100	192.168.18.112	150	10010110	192.168.18.210
53	00110101	192.168.18.113	151	10010111	192.168.18.211
54	00110110	192.168.18.114	152	10011000	192.168.18.212
55	00110111	192.168.18.115	153	10011001	192.168.18.213
56	00111000	192.168.18.116	154	10011010	192.168.18.214
57	00111001	192.168.18.117	155	10011011	192.168.18.215
58	00111010	192.168.18.118	156	10011100	192.168.18.216
59	00111011	192.168.18.119	157	10011101	192.168.18.217
60	00111100	192.168.18.120	158	10011110	192.168.18.218
61	00111101	192.168.18.121	159	10011111	192.168.18.219
62	00111110	192.168.18.122	160	10100000	192.168.18.220
63	00111111	192.168.18.123	161	10100001	192.168.18.221
64	01000000	192.168.18.124	162	10100010	192.168.18.222
65	01000001	192.168.18.125	163	10100011	192.168.18.223
66	01000010	192.168.18.126	164	10100100	192.168.18.224
67	01000011	192.168.18.127	165	10100101	192.168.18.225
68	01000100	192.168.18.128	166	10100110	192.168.18.226
69	01000101	192.168.18.129	167	10100111	192.168.18.227
70	01000110	192.168.18.130	168	10101000	192.168.18.228
71	01000111	192.168.18.131	169	10101001	192.168.18.229
72	01001000	192.168.18.132	170	10101010	192.168.18.230
73	01001001	192.168.18.133	171	10101011	192.168.18.231
74	01001010	192.168.18.134	172	10101100	192.168.18.232
75	01001011	192.168.18.135	173	10101101	192.168.18.233
76	01001100	192.168.18.136	174	10101110	192.168.18.234
77	01001101	192.168.18.137	175	10101111	192.168.18.235
78	01001110	192.168.18.138	176	10110000	192.168.18.236

79	01001111	192.168.18.139	177	10110001	192.168.18.237
80	01010000	192.168.18.140	178	10110010	192.168.18.238
81	01010001	192.168.18.141	179	10110011	192.168.18.239
82	01010010	192.168.18.142	180	10110100	192.168.18.240
83	01010011	192.168.18.143	181	10110101	192.168.18.241
84	01010100	192.168.18.144	182	10110110	192.168.18.242
85	01010101	192.168.18.145	183	10110111	192.168.18.243
86	01010110	192.168.18.146	184	10111000	192.168.18.244
87	01010111	192.168.18.147	185	10111001	192.168.18.245
88	01011000	192.168.18.148	186	10111010	192.168.18.246
89	01011001	192.168.18.149	187	10111011	192.168.18.247
90	01011010	192.168.18.150	188	10111100	192.168.18.248
91	01011011	192.168.18.151	189	10111101	192.168.18.249
92	01011100	192.168.18.152	190	10111110	192.168.18.250
93	01011101	192.168.18.153	191	10111111	192.168.18.251
94	01011110	192.168.18.154	192	11000000	192.168.18.252
95	01011111	192.168.18.155	193	11000001	192.168.18.253
96	01100000	192.168.18.156	194	11000010	192.168.18.254
97	01100001	192.168.18.157			

6. Setting the computer

Ⅰ. In order to read the video data accurately, “DirectDraw” must be forbidden. The operation method is shown from Figure 7 to Figure 10.

Click on “start”-“run”, input “dxdiag”, click on “OK”.

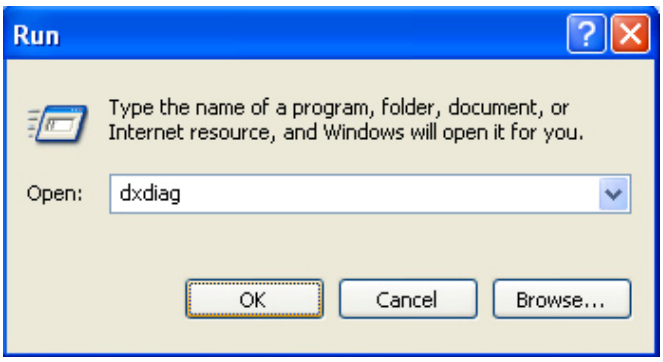


Figure 7

1). Appear " DirectX", click on "Yes"

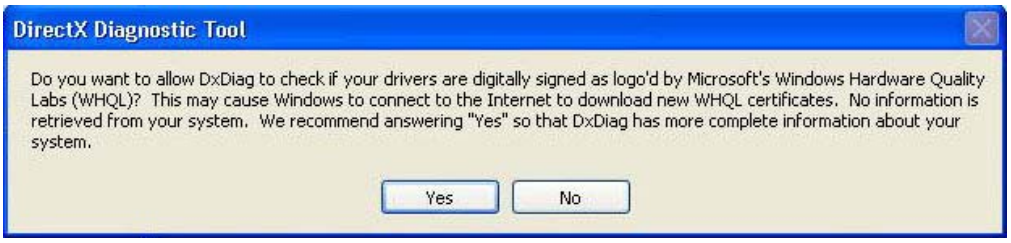


Figure 8

2). "DirectX"box pops up, select"display" and click on "Disable"

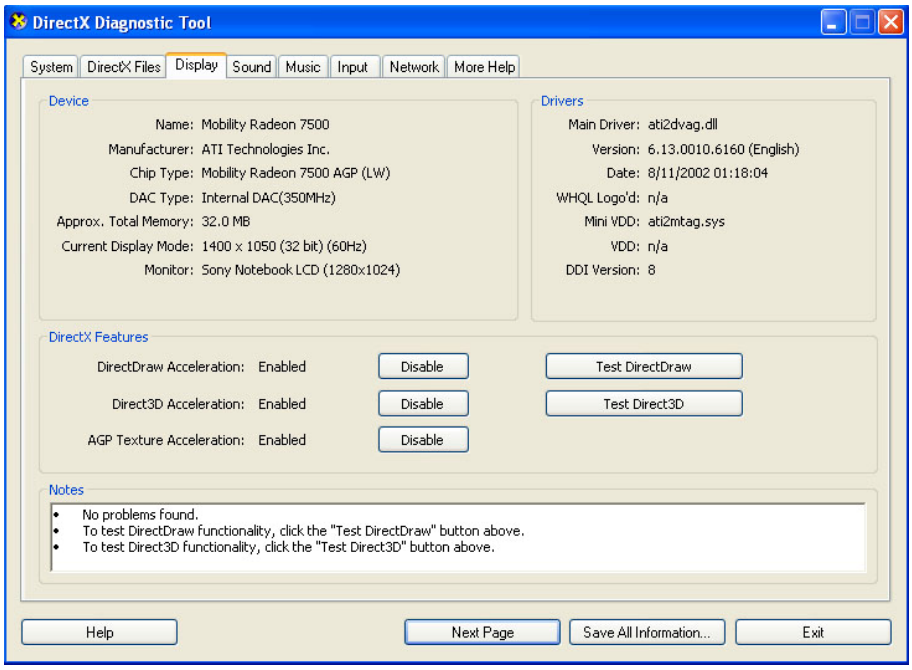


Figure 9: Forbid DirectDraw speedup

Then Figure 10 will be shown which means the option is already forbidden.

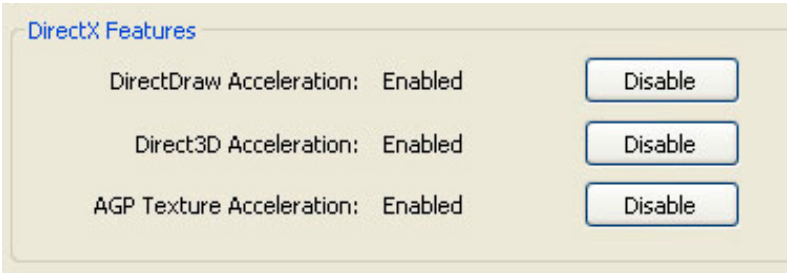


Figure 10 the interface of after forbidding

Ⅱ. In order to connect the controller normally，the IP address must be set as follows:

Please set IP to "192.168.18.38"，set Subnet Mask to "255.255.255.0"，definitely can not use the IP address in Table 5.1 of《the IP address correspond to the DIP switch》.For not affecting other functions of the computer network, you can use advanced configuration of TCP/IP bundling several IPs. As shown in Figure 5-5, one network card bundling several IP addresses, of which,

“192.168.1.2” is used to connect the Internet and other networks. The added IP address,“192.168.18.38”, is used to connect the controller. For more advanced network settings and topology planning, please let professional to do.

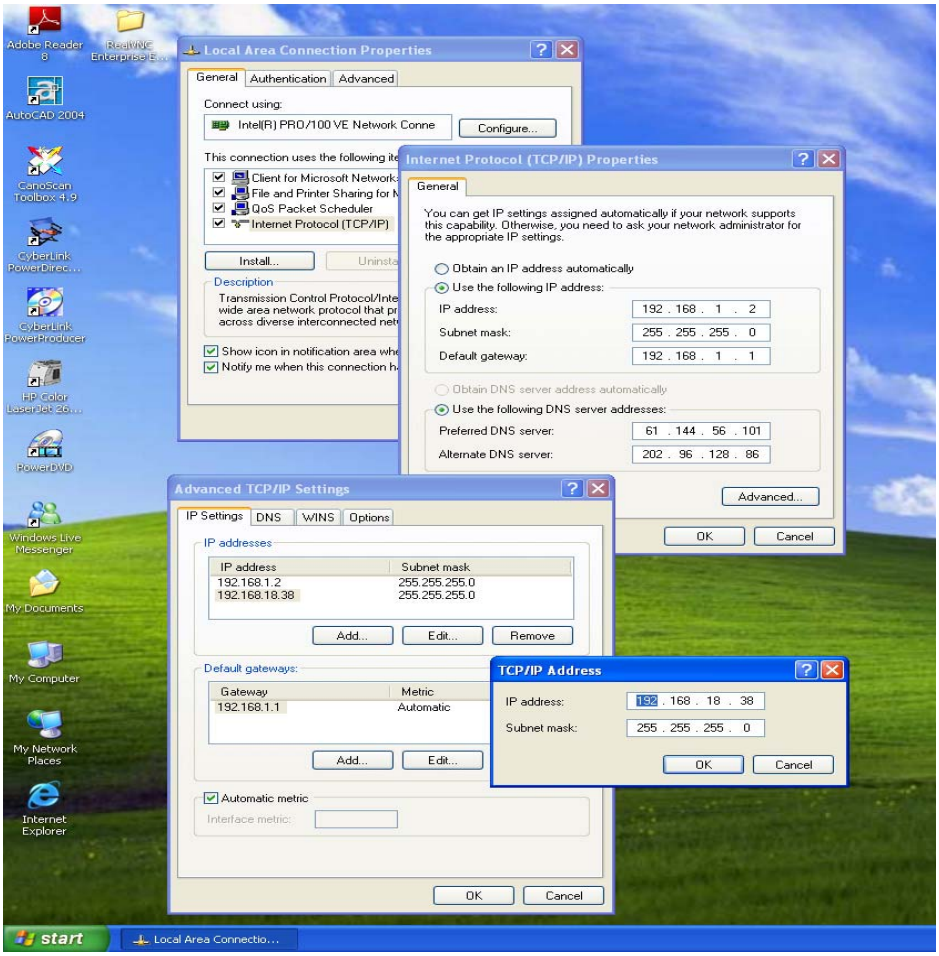


Figure 11：Single card bundle multiple IP addresses

7. Software operation

The controlling software is pure green software, no need to install, just copy the file LT-5100.exe to computer

7. 1 Start

Double-click on the icon of LT-5100 7.6.exe to run the software which is written in mulit-languages. First choose the language, as shown in Figure 12，and the screen number as shown in Figure 13.After clicking “ok” it will be shown as Figure 14，The screen No. will be shown. If clicking “start” or using the in-build broadcasting before the controller is completely activated, it will be shown as

Figure 15，Tips will specify which controller not ready.

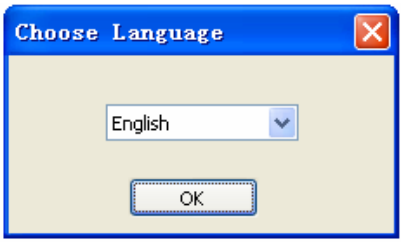


Figure 12

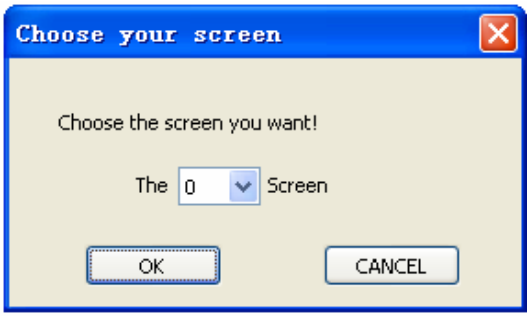


Figure 13

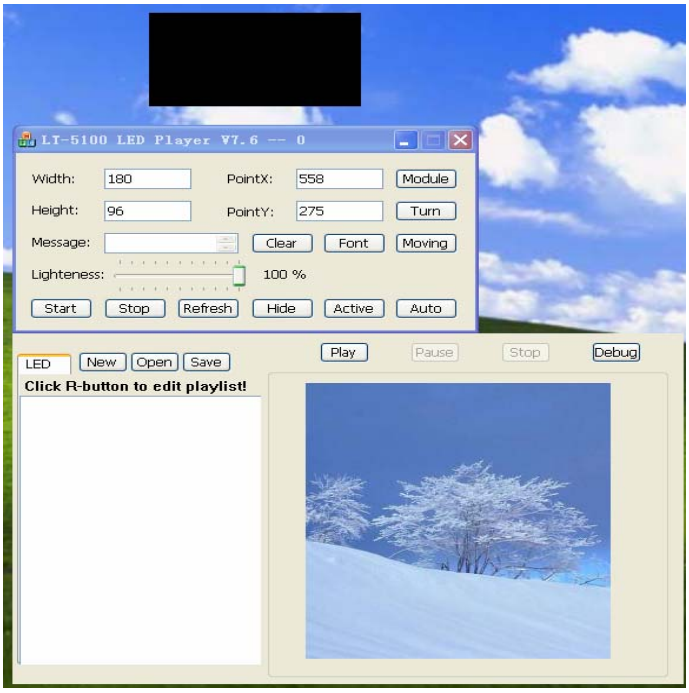


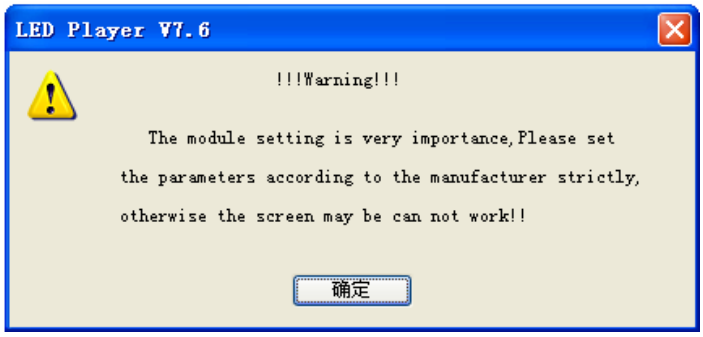
Figure 14

Figure 15

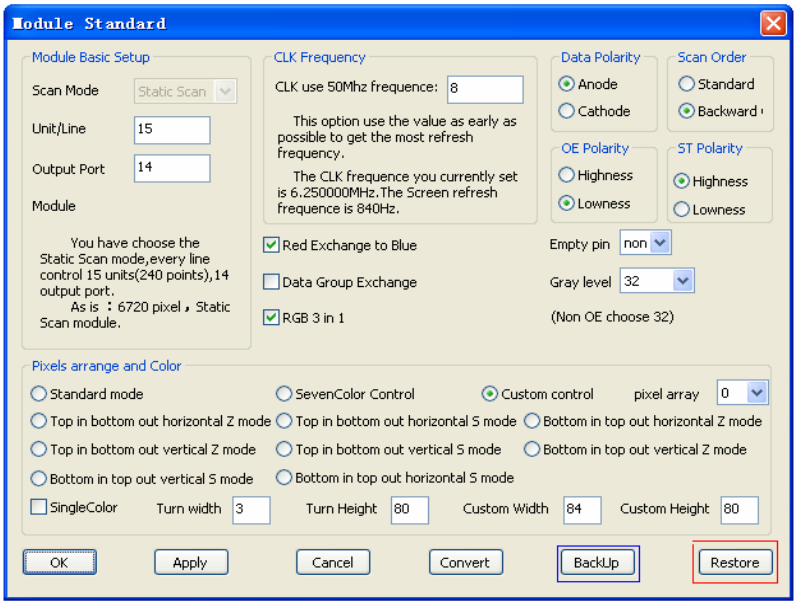
7．2 Configure the software

Each specific screen has different layouts, as a result, the configuration is different, for professional users, you can fill in each parameter by yourself according to the actual installation; as for beginner, we will set a configuration file according to customer's actual screen layout, users can upload the configuration file to the software simply to complete the software configuration, and then the software will work normally, see Figure 16-Figure 19:

↓Figure 16: Press Module



↓Figure 17



↓Figure 18: Press Restore

↓Figure 19:upload***.DAT config file

Press Backup, to save the current config file in DAT format

8. Play a video file

Use the Viewfinder or the built-in play function to play a video file

8．1 Use Viewfinder to play

1． After complete running，click on the “start” and the viewfinder frame will pop-up as shown in Figure 20，the images among the viewfinder frame will be transferred to the LED screen.

Figure 20: Viewfinder

2. During the broadcasting, you can drag the viewfinder frame by mouse to find view. When the mouse appears as ✥, press the left key of the mouse and then drag the viewfinder frame to the position when you want to find the view and then release pressing the key. You also can input the value for the X and Y coordinates, then click on “fresh”. As shown in Figure 21

Figure 21 Before moving the Viewfinder frame

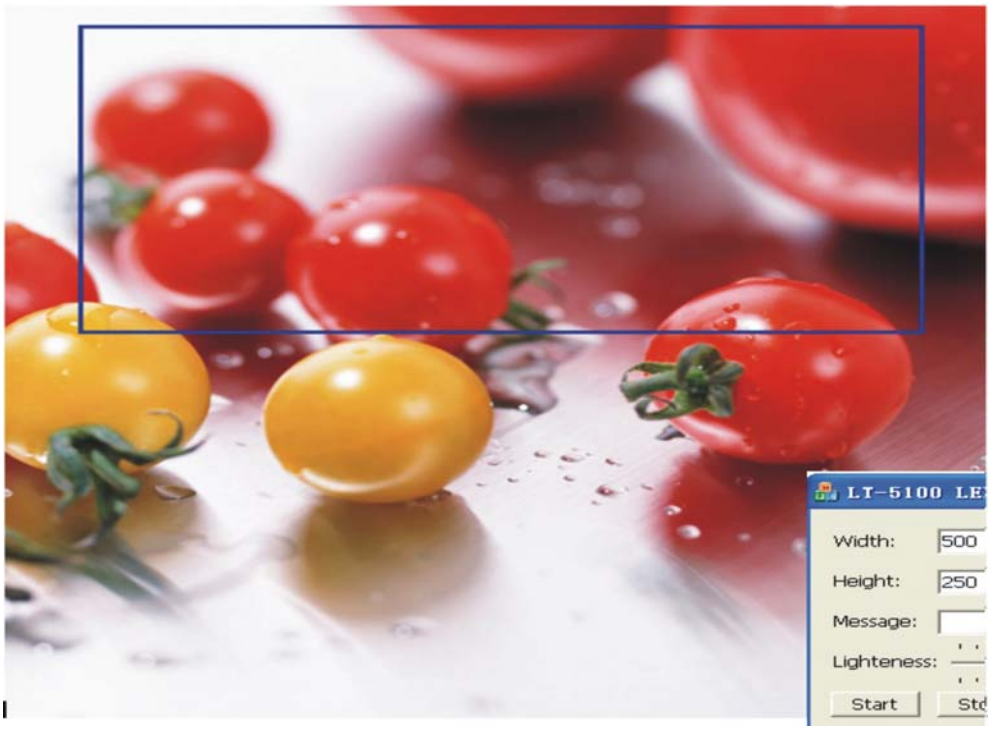


Figure 22：After moving the Viewfinder frame

8．2 Play Multimedia

Using the software's own player to play multimedia，this software is compatible with all video files in any format that can be played on computer, meanwhile it supports displaying of text and picture, the system will automatically choose the edited list to broadcast circularly , Support segment broadcasting and zoom the multimedia vector to the pixel size of the corresponding area, as shown in Figure 23

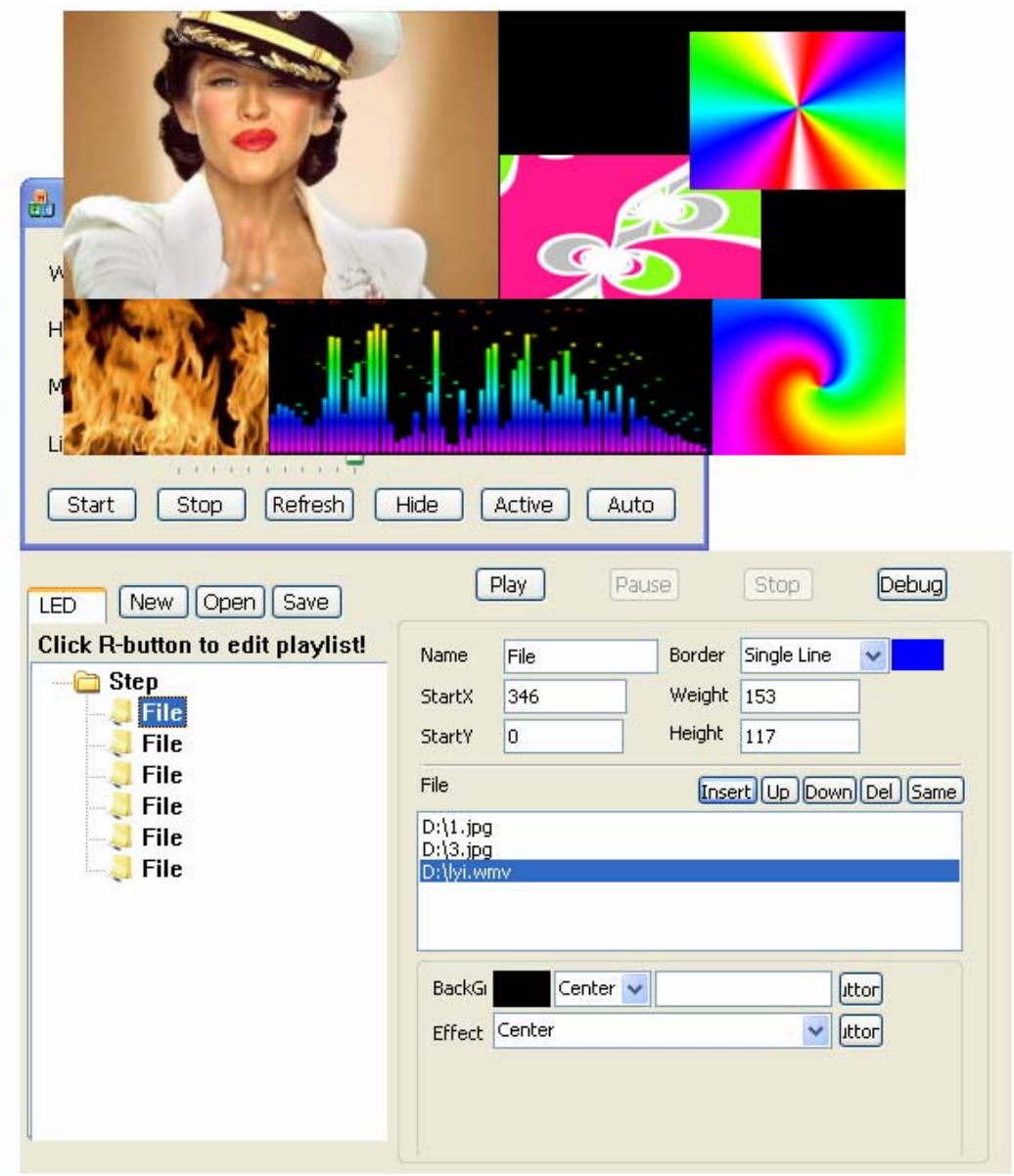


Figure 23: Play multimedia

Several windows are shown in one player, one file is added, one window will be added too, the size, coordinate and stunt display of each screen can be set independently, and each window can play different formats of video files, like a film, flash etc, the edited programs can be saved in the playlist, you can import it directly next time. The software will automatically get to the settings of last time after the software is closed and restarted.

If the similar tips appear as shown in Figure 24 or the play list can not be used normally, which means that the WINDOWS operating system is lacking of MSXML package, pls ask for the patch from the suppliers or download from the Microsoft website to install. Generally, Microsoft Core XML Services (MSXML) 6.0 above are applicable. Please read Microsoft website as Figure 25 to get more information.

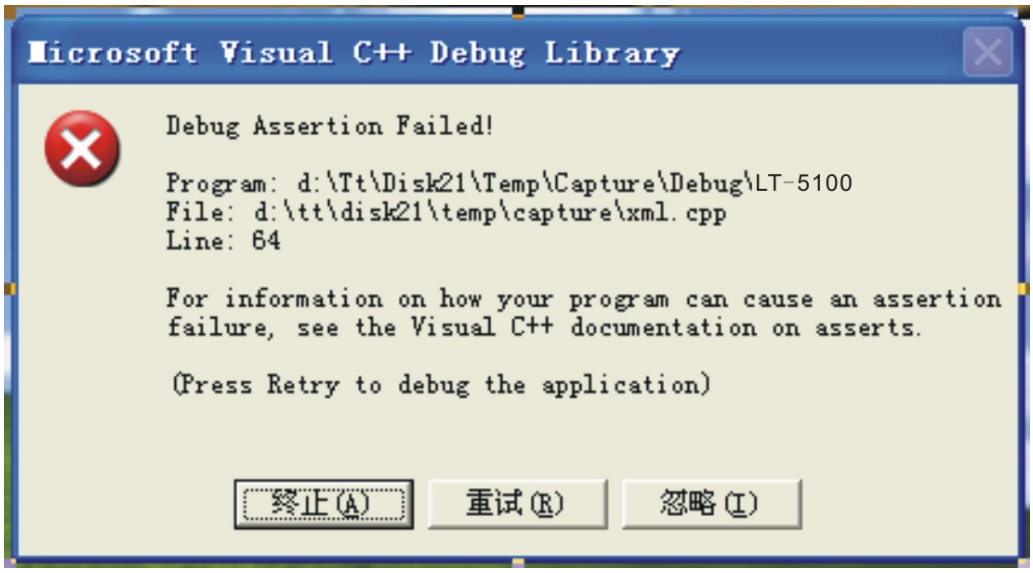


Figure 24 lacking of MSXML package

Figure 25: visit OS manufacturer website for more information8

8．3 The brightness of the screen

The screen brightness can be adjusted by dragging the slip to achieve the best viewing effect，as shown in Figure 26. This setting can be done when the viewfinder frame is working.

Figure 26

8．4 Setting messages

1. Import text: Import the text in “Message”, then click on the key “Refresh”.
2. Set the moving mode of the message: click on the “moving” key and will see a dialog as shown in Figure 27.after finishing the settings, clicking on “OK” to apply, or “Cancel” to give up. There are the following three settings:

①Moving Orientation：there are five orientations, Left（The message is moving from right to left）、Right（Moving from left to right）,Up（Moving from down to up）、Down（Moving from up to down）,Static（The text is static）.

②Character Position：Top（The message is displayed on the top of the screen）,Center（Displayed on the center of the screen）, Bottom（Displayed on the bottom of the screen）.

③Moving speed：the moving speed of the message can be changed by dragging the sliding strip，the Minimum and Max. speed is 1 Pix/s and 100 Pix/s. respectively.

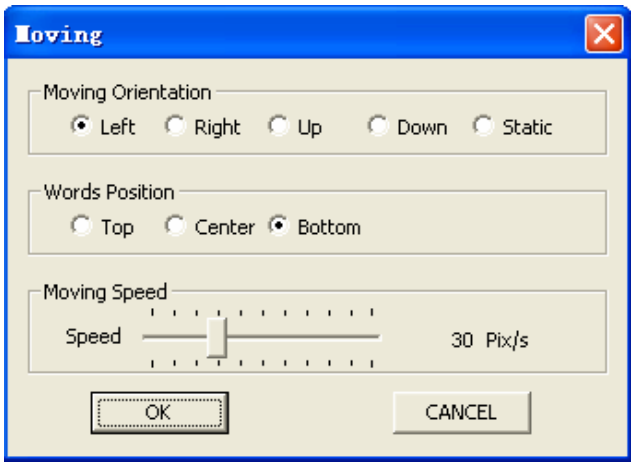


Figure 27 The moving mode of the words

3. Setting Character font：click on the “Font” key，and it will be shown as Figure 28. Including style、font、size、color and so on，which can be previewed in the “Example”. After finishing the settings, clicking on “OK” to apply, or “Cancel” to give up.

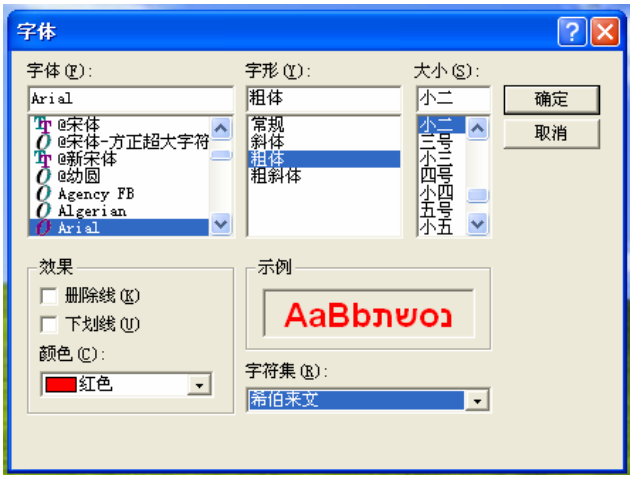


Figure 28 Font settings

8.5 Close the software

Click on the  to close the software as shown in Figure 7-54.The system will automatically save all settings in order to keep the last settings when opening the software in the next time.

Figure 29 Close the software

8.6 Normal operation steps

1. Connect all devices under the power off.
2. Start in order：Computer-----LED screen-----Controller-----start computer software.
3. Close in order：Close computer software-----Controller-----LED screen-----computer.

8．7 Activation

The activation function can be divided into permanent activation and time-based activation. When importing the permanent activation number, the controller will work continuously, no time limited. ,.If use the time-based activation again, the controller will work until the time you choose, when the accumulated worked time reaches to your active time，the controller will stop working，the accumulated worked time is not effected by power outages. Click on “active” as shown in Figure 30

The EW activation includes：1）600hrs，2）1200hrs，3）2400hrs

Please use the permanent activation if possible.

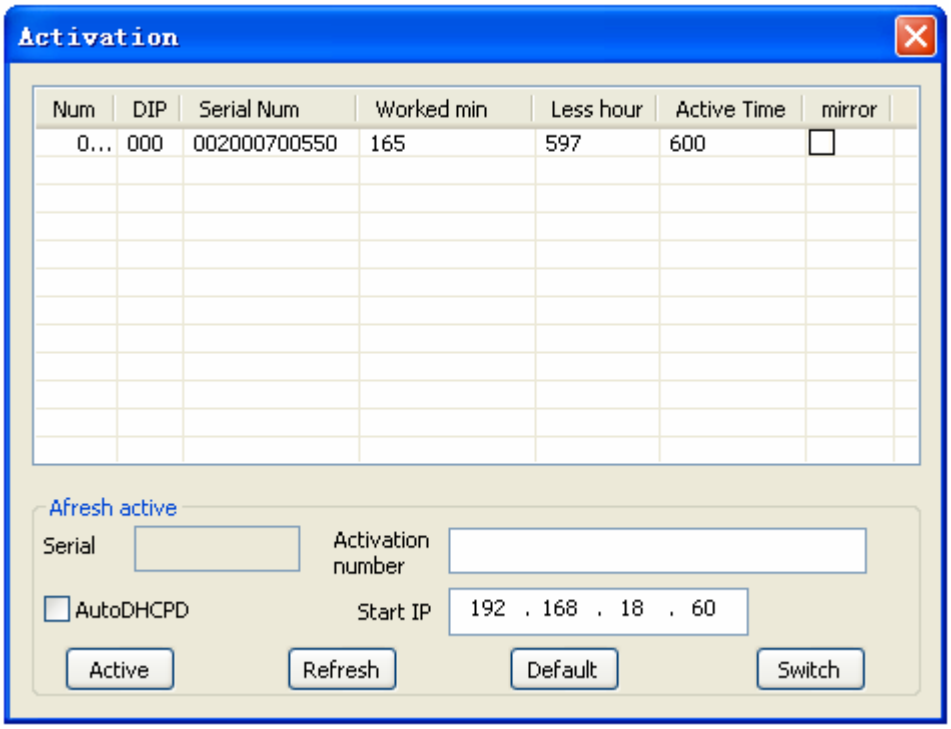


Figure 30

Num is the screen number;

DIP is he controller No. used in the system;

Serial Num is the sequence of controller.;

Worked min is the period that controller has been worked.;

Less hour is the time that controller can continue to work;

Active Time is the total time for that the controller can work.;

Active method:

As shown in Figure31, select the controller to be activated, then the corresponding serial

Num will be shown. After that, input corresponding hours in activation code box and click on “active”, then click on “refresh”.

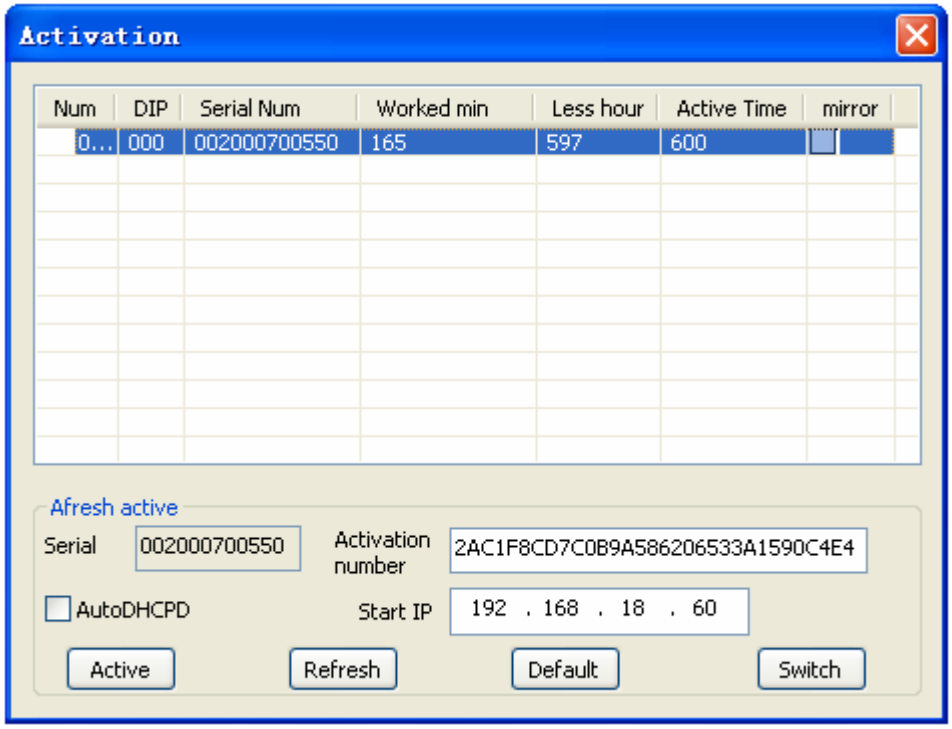


Figure 31: input active code